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ABSTRACT

This planning proposal recommends that Memphis State University Libraries make information on CD-ROM (compact disc--read only memory) available in the Reference Department by establishing an Information Retrieval Center (IRC). Following a brief introduction and statement of purpose, the library's databases, users, staffing, facilities, and equipment are discussed; three recommendations for the installation of CD-ROM stations are presented; and eight CD-ROM-format databases recommended for acquisition during the initial phase of IRC implementation are described, including annual subscription costs. Presented next are a consideration of database selection and workstation allocation which includes a table depicting workstation allocation and use, and a tabular presentation of workstation configurations which covers the quantity, description, and cost of workstation equipment, modems, furniture, and electrical power control equipment. Finally, site preparation specifications are presented for walls, electrical power, lighting, HVAC (heating, ventilating, and air conditioning), library computer system data cables, and telephone service. An illustration of a microcomputer power source and a library floor plan are included, and a 60-item bibliography is provided. (Author/KM)

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INFORMATION RETRIEVAL CENTER: A PROPOSAL FOR THE IMPLEMENTATION OF CD-ROM DATABASE TECHNOLOGY AT MEMPHIS STATE UNIVERSITY LIBRARIES

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Reference Department
Memphis State University Libraries

September, 1987

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ABSTRACT

This document represents the planning proposal for the development and implementation of the Information Retrieval Center in the Reference Department, Memphis State University Libraries. The planning document consists of (1) an introduction and statement of purpose, (2) a rationale for current implementation, (3) a list of initial CD-ROM databases to be required, (4) a description of workstation allocation, (5) a description of workstation configuration and cost, (6) specifications for site preparation, and (7) a lengthy bibliography of professional literature relevant to CD-ROM technology in library applications.

INTRODUCTION

Memphis State University Libraries has enjoyed a prominent and successful history of implementation and use of information technology dating back to 1971. Online bibliographic searching, end-user searching, online cataloging via OCLC, online Interlibrary Loan and automated catalogs and circulation systems have all been successfully implemented in the last two decades. The most recent technological advances have centered on the development of compact disc read only memory devices (CD-ROM), software and hardware for the searching of indexes and abstracts of scholarly, scientific and professional literature.

CD-ROM technology bridges the technological and intellectual formats of online bibliographic searching and printed indexes embodying several of the attributes of both research environments. Certainly the expense of equipment, software and database lease-purchases are reminiscent of online searching. So too is the power of searching vast stores of literature in an efficient computer driven environment. The costs are moderated also by the fixed costs per annum for searching databases through subscription or purchase prices that are not use dependent. As with printed index/abstract use, the per use cost of searching CD-ROM databases decreases with increased use. The costs of CD-ROM technology is higher than their printed couterparts but its costs can be budgeted more specifically and with a degree of certitude not possible in the traditional online environment.

This emerging technology is not without its downside attributes. Training, instruction, and supervision of library users, security, maintenance, physical space accomodations, noise levels, and supply needs will all have significant impact on these activities. Staffing represents one of the most serious concerns. The costs of library supervision and training may reach $30-40,000 per year in staff resource allocation providing for 90 hours of service availability plus instructional time.

As a user-demand driven resource, the eventual impact on library systems, services and staffing is indeterminable. If the lessons of online bibliographic searching and end-user searching are in any way valid, it is reasonable to assume that demand will be great, it will increase steadily, and it will require considerable staff support.

Despite some uncertainty about the impact of this technology it is expected that implementation of this proposal will provide several outcomes including the following:

(1) Increased use of information technology in support of student and faculty research activities,

(2) Increased options for independent and personal information retrieval,

(3) Lower costs to students and faculty for electronic (online) bibliographic searching of heavy-use databases.

(4) Expanded coverage of business and humanities indexing and abstracting services by providing database access not currently available,

(5) Additional, expanded online bibliographic searching in the end-user (U-Search) format through the introduction of DIALOG's Knowledge Index system supplementing the BRS/After Dark service, and

(6) Providing the capability of printing from the library catalog database not commonly available to students and faculty at present.

CD-ROM IMPLEMENTATION RATIONALE AND PROPOSAL FOR AN INFORMATION RETRIEVAL CENTER (IRC)

PURPOSE

The purpose of this report is to recommend that Memphis State University Libraries make information on CD-ROM available in the Reference Department. The addition of CD-ROM would increase the user's access to information by providing a more sophisticated method of retrieval. With CD-ROM the researcher has the ability to access information which might otherwise be difficult or impossible to locate.

BACKGROUND

As an academic library, Memphis State University Libraries functions to support the research and teaching missions of the university. The library provides access to, organizes and preserves information in its variety of formats. A prime function of the Reference Department is information access, whether through the card/online catalog, books, indexes or online databases. Automated information access began at Memphis State University Libraries in 1971 when a service was started through which users could request a computerized search of the literature. Early searches were performed in a batch mode and required about two weeks to receive the results. Direct online access was provided in 1977 when Lockheed's DIALOG was made available and this service was later enhanced in 1980 with the addition of BRS. In 1985 U-SEARCH, the end-user service, was added and the user could perform his/her own search. Library users can now choose to do a search in a print index, to request that a professional librarian perform an online search, or to do the search themselves in an online database.

In a relatively short period of time, library users have become accustomed to a wide variety of new reference resources. These services have been well received and have become a firmly established part of the reference department. In FY 86-87, 1,751 online searches were performed (1,331 on the intermediary search service and 420 through U-SEARCH). This is a 20% increase for the intermediary service and a 40% increase for U-SEARCH over the previous years' activity and represents the largest number of searches conducted in any single year. These growth rates are not atypical and represent ever-growing patterns of use. These statistics indicate that the library should begin to examine other technologies, such as CD-ROM.

CD-ROM was first introduced in November 1984 and is quickly proving to be an important technology for information access and retrieval. A single CD-ROM has the storage capacity of about 275,000 pages or the equivalent of 1,500 double-sided double-density floppy disks. CD-ROM offers many of the advantages of an online search. Researchers have immediate access to a large number of records, the ability to combine search terms, to search for terms anywhere in the record, and to receive a printout of their personally defined search results. CD-ROM has an advantage over an online search in that charges are prepaid, the disk is in-house, rented or leased by the library or corporation, thus avoiding the significant expense of connect and per citation charges. The cost of providing access on CD-ROM is a pre-established fixed cost per annum. The cost of this type of search actually decreases iwth increased use. Providing access to CD-ROM would extend the reference resources available at Memphis State and make it possible to locate information which might have been impossible,

difficult and costly at an earlier time. It would allow users a greater flexibility in meeting their information needs.

Databases

A CD-ROM service should be directed toward the research needs of faculty and students. An indication of which databases to choose can be found by looking at the Information Retrieval Service statistics during the last few years. ERIC, Psychological Abstracts and Dissertation Abstracts have consistently been the most heavily searched databases in both the Information Retrieval Service and U-SEARCH. These are also extensively used in their print formats. Providing these databases in their CD-ROM format would support academic research by increasing access to this material. The Wilson indexes (Reader's Guide to Periodical Literature, Business Periodicals Index and others) are other popular and respected indexes. These are available as Wilsondisc.

Users

It might be expected that users of the CD-ROM databases would be the same as those now using the printed and online versions of these databases, plus new users who may be attracted by the new format. The introduction of CD-ROM will probably have some effect on the other online services and may decrease the demand for some. There will, however, always be researchers who prefer that a professional perform the search and indeed there are many searches which should be performed by a professional. In addition, CD-ROM disks are updated quarterly, so that the most recent information will still be available only through the online services. It is interesting to note that the introduction of U-SEARCH has not caused a decrease in IRS users and that both services have continued to grow. U-SEARCH has

provided increased visibility to online searching. In a similar manner, CD-ROM can be expected to give more exposure/prominence to direct online information access.

Staffing

The CD-ROM service should be staffed by members of the Reference Department on a regular schedule similar to that of the Reference Desk. Reference staff should be as familiar with this reference tool as they are with Reader's Guide or Science Citation Index. Users will need assistance with CD-ROM, as they do with any new reference tool and all staff need to be prepared to answer questions and provide guidance.

Facility/Equipment

The CD-ROM service needs to be located in the Reference Department where it can be constantly monitored. Security is a prime concern and the area must be locked when the service is not in operation. Another concern is noise--both from the printers and from people congregated in a small place. An area of the Reference Department should be enclosed to house the facility. This area will be designated the "Information Retrieval Center" (IRC). It should contain workstations for CD-ROMs, for end user searching through dial-up services, and access to the MSU online catalog. Each CD-ROM station will require a microcomputer with monitor, a CD-ROM player, and a printer. The dial-up services will require a microcomputer with hard disk installed, a modem, and printer. The CLSI stations should be equipped with a CLSI terminal and a printer. A possible configuration would be 16 workstations (2 for CLSI, 2 for ERIC, 2 for Pschological Abstracts, 5 for Wilsondisc, and 2 for dial-up end user services).

RECOMMENDATIONS

It is recommended that Memphis State University Libraries install CD-ROM stations in the Reference Department of the Library. The implementation of a CD-ROM program is recommended at this time to take advantage of the demonstrated interest in automated resources. Such a program would benefit Memphis State University Library in that it would:

(1) Give the library increased recognition as a leader in the field of automation,

(2) Provide better reference service to the University and Memphis area community,

(3) Increase the status of the library withint the university community.

DATABASE ACQUISITION

This section lists the CD-ROM format databases recommended for acquisition during this initial phase of the Information Retrieval Center (IRC).

The cost figures are annual subscriptions to these databases. The advantages include considerable expansion of our database coverage and and access. The expense will be limited to this fixed rate per annum. If we opt for current online searching, one of the features of Wilsondisc, we will incur telecommunications expense at approximately $11.00 per hour (or more if FCC current proposal proceeds).

Pursuant to our deliberations and in view of the weight of the professional literature we recommend that these subscriptions be provided on the same basis as other subscriptions, i.e., from the library book/periodicals budget. The unique and specialized nature of CD-ROM technology precludes the cancellation of existing subscriptions for those titles on this list that have print counterparts. The dollar savings would be minimal and the loss in research access would be significant and very problematic, far outreaching any monetary gain.

It is our intent that these resources and capabilities be provided to students and faculty without charge. The total initial first year costs for these databases will be $18,265. We can expect recurrent subscription costs of at least $11,995. As more databases become available we will need to add them as well.

CD-ROM Database Subscriptions

ERIC Database on CD 1200.00

ERIC complete starter set on CD. Includes ERIC Quarterly subscription disc and archival set of 2 discs containing Resources in Education (1966-1982) and Current Index to Journals in Education (1966-1982). Software is included and may be copied for multiple work stations. Available from SilverPlatter Information Services, 37 Walnut St., Wellesley Hills, MA 02181, phone (617) 239-0306.

PscyLIT Database on CD 4,495.00

PsychLIT Database on CD, 1974 to present, 2 discs. The database is the CD counterpart of Pschologyical Abstracts 1974 to present. The two discs include the archival disc (1974-1982) and a current disc (1982 to present). The current disc is updated quarterly. The price quoted includes the first year subscription, discounted 10% for subscribers to Psychological Abstracts. Available from SilverPlatter Information Services, Inc., 37 Walnut St., Wellesley Hills, MA 02181, phone (617) 239-0306.

Dissertation Abstracts on CD - Archival Edition 5495.00

Archival edition of Disertation Abstracts Ondisc (1861-1984). Two compact discs covering dissertations and masters theses published from 1861 to June, 1984. Disc 1 contains 750,000 citations from 1861 through June, 1980. Disc 2 contains 150,000 citations from July 1980 through June, 1984. Search software is included in the package and can be copied for multiple work stations. Available from SilverPlatter Information Services, Inc., 37 Walnut St., Wllesley Hills, MA 02181, phone (617) 239-0306.

Dissertation Abstracts Ondisc - Current Edition 995.00

A current disc covering July 1984 through December 1986. This disc is updated annually. The price is valid through Oct. 1, 1987 and guaranteed for 2 subsequent updates. Available from UMI, Dissertation Information Service, 300 North Zeeb Road, Ann Arbor, MI 48106; contact Jim Morris (800-521-0600, ext. 418).

WILSONDISC: Business Periodicals Index 1,495.00

Annual subscription to WILSONDISC Business Periodicals Index database June 1982 to date. Subscription includes 4 quarterly cumulations in CD form plus unlimted searching in Business Periodicals Index online. Available from H. W. Wilson Company, 950 University Avenue, Bronx, NY 10452; phone (212) 588-8400.

WILSONDISC: Humanities Index 1295.00

Annual subscription to WILSONDISC Humanities Index database from February 1984 to date. Subscription includes 4 quarterly cumulations in CD form plus unlimited searching in Humanities Index online. Available from H.W. Wilson Co., 950 university Avenue, Bronx, NY 10452; phone (212)

WILSONDISC: Reader's Guide Abstracts 1995.00

Annual subscription to WILSONDISC Reader's Guide Abstracts database January 1983 (indexing)/September 1984 (abstracting) to date. Subscription includes 4 quarterly cumulations in CD form plus unlimited searching in reader's Guide Abstracts online. Available from H. W. Wilson Company, 950 University Avenue, Bronx, NY 10452; phone (212) 588-8400.

WILSONDISC: Social Sciences Index 1295.00

Annual subscription to WILSONDISC Social Sciences Index database April 1983 to date. Subscription includes 4 quarterly cumulations in CD form plus unlimited searching in Social Sciences Index online. Available from H. W. Wilson Company, 950 University Avenue, Bronx, NY 10452; phone (212) 588-8400.

DATABASE SELECTION AND WORKSTATION ALLOCATION

Database selection for CD-ROM access was guided by historical demand patterns for online bibliographic searches. Though no data exist to indicate precise numbers of manual searches conducted through the print versions of these databases, the personal and professional observations of staff verify the high usage in these titles. These titles are also frequently requested in seminar and training sessions provided by the department's instructional staff.

A CD-ROM version of MEDLINE is not proposed in this initial implementation phase of the IRC because the database currently offered is of insufficient size to provide adequate literature coverage in response to patron needs. Another highly used database, ABI/INFORM, is not provided in this proposal because at present no CD-ROM product is available. A reasonable substitute in the business category is the Wilsondisc offering of the Business Periodicals Index.

A subject area not traditionally well served in the electronic databases is the humanities. This initial phase of IRC implementation, proposes the use of the Wilsondisc product corresponding to the Humanities Index. In a similar manner the Social Sciences Index and the Reader's Guide to Periodical Literature CD-ROM versions are proposed to address needs in these areas, making the technology available in areas not previously well provided.

Subsequent equipment and database assignment will be subject to use patterns provided by patron activity. A potential side benefit of

CD-ROM technology is that user needs, behaviors and successes in information seeking activities will be more explicity revealed.

WORKSTATION ALLOCATION AND USE

Database	Workstations
ERIC	
CIJE 1966-82	1
RIE 1966-82	1
CIJE & RIE Current	1
PSYCLIT	
1974-82	1
1982-Current	1
DISSERTATION ABSTRACTS	
1861-1980	1
1980-1984	1
1984-Current	1
BUSINESS PERIODICALS INDEX	
1982-Current	1
HUMANITIES INDEX	
1984-Current	1
READERS GUIDE ABSTRACTS	
1983-Current	1
SOCIAL SCIENCES INDEX	
1983-Current	1
	TOTAL: 12

WORK STATION CONFIGURATIONS

Each CD-ROM work station will consist of the following equipment:

Quantity	Description	Unit Cost
1	Zenith microcomputer Model ZSS159 with 512K RAM: 20 megabyte internal hard disk; one (1) 5.25 inch floppy disk drive; ansynchronous, serial port RS-232 pin port installed; parallel port RS-232 25 pin installed; MS-DOS operating system version 2.1 or later; monochrome monitor model ZVM 1240; all cables, connectors and interfaces complete.	$1,299.00
1	Chip, memory micro (256K, set of 9). Stores Inventory stock no. 1-04-5748.	$20.16
1	Philips CD-ROM Drives model CM-100 Stand Alone, Top Loading, key locking, with controller card for IBM-PC compatible Zenith microcomputer (Model ZSS159) and MS-DOS operating system 2.1 and subsequent. All locks should be on same key, 10 copies of key minimum. All cables, connectors and interfaces compplete. Available: Philips (Laser Magnetic Storage) 4425 Arrows West Drive Colorado Springs, Colorado 80907 ph: 303-593-4286	$1,095.00
1	Brother model M-1709 dot matrix printer, parallel 25 pin, RS232 interface. Variable print speed 120-200 CPS. Variable print quality, pin-feed/ tractor mechanism standard. Print buffer must exceed 16K. Must be IBM-PC compatible with Zenith microcomputer Model ZSS159. All cables connectors and interfaces complete.	$695.00
	Work Station Unit Cost:	$3,109.16

OPTIONAL WORK STATION WITH MODEM

Five work stations will be provided with MODEMs for access to external, proprietary databases. These MODEMs are as follows:

Quantity	Description	Unit Cost
1	MODEM, 1200/2400 BAUD (BPS). Must be fully Hayes-compatible. Internal with auto-dial, auto-answer, auto-select for transmission speed, built-in speaker, built-in error detection and correction with Microcom Network Protocol, asynchronous and synchronous communication fully-supported and auto-selecting. Must be fully IBM-PC compatible with Zenith Model ZSS159 microcomputer and MS-DOS 2.1 and subsequent versions. Line and phone connections, 4 wire standard; external connections. All cables, connectors and interfaces complete.	$900.00
	Optional Work Stations Cost:	$4,009.16

FURNITURE

The need for privacy while working with computer equipment arises from the need to be free of distraction for efficient use but more importantly the need for noise abatement. Each CD-ROM unit requires the use of a printer for copies of search results. The work stations are provided with ample desk surface and support for the equipment and each is surrounded on three sides by acoustic panels. The furniture and accomodation for these work stations includes the following:

Quantity	Description	Unit Cost
1	Global "Clear Desk Condo" PC Workstation 60"W X 30"D X 27"H; weight 160 lbs. Includes base unit, modesty panel, manual shelf, shelving module with two adjustable shelves and one slide-out shelf. Shelving module has locking tambour door. All locks on same key, 16 copies required. Color: Walnut/Black. Global Stock No. C56558W.	$319.00
1	Casters (set of 6) for "Clear Desk Condo" PC Workstations. Global Catalog No. C5656.	$34.00
1	Chair. Pneumatic Ergo Chair. Seat height adjustable 17-22". Height and depth adjustable chair back. 5 blade chrome base with casters. Color is brown. Available from Global Catalog No. C5056.	$74.95
1	Global PC CRT Float System. Includes: clamp mount to desk CRT support with CRT platform 13-7/8"W X 11-3/4"D adjusting 4-16 inches vertically over desk surface, maximum weight 35lbs., on pneumatically controlled and counterbalanced system. Platform rotates 90 degrees and tilts ±5 degrees. Includes display cable wet with 3 foot long power extension cord and 3 foot long I/O data cable extension cable. All cables fully shielded. All connectors, attachments, interfaces and components complete. Global Catalog No. C6070.	$189.00
1	Single unit acoustic panel office centers from Global. Panels only. Fabric is 100% Olefin, UFAC #1 rated fire resistant fabric with black enamel coated metal frames and leveling glides. All hardware and connectors included, complete. Each includes one (1) 60 inch panel and two (2) 30 inch panels ready to assemble on site. One color only. Global Catalog No. C59008G.	$316.00
	Work Station Furniture Cost:	$932.95

OTHER EQUIPMENT

Electrical power control will be provided on a shared basis for the work stations.

Quantity	Description	Unit Cost
1	American Power Conversion Corp. Model 800RT Power Supply for multi-user systems. Uninteruptible power supply output rated at 800 Volt Amps or 600 watts. 117 Volts AC 12% (static), 15% (dynamic). 60 Hertz ±0.25%. External AC output via full-time EMI/RFI filter. Surge suppression 480 Joule, 6500 Amp, zero clamping time. Inverter pre-synchronized and phase locked to commercial supply; automatic transfer to battery inverter on commerical power fault (including sags, blackouts, spikes and surges of overvoltage); automatic re-synchronization and re-transfer on recovery; transfer time typical at 2 milliseconds. Battery service nominal 6 min. at 600 watts. Battery must be spillproof, leakproof, maintenance-free, operation in any position, recharge in 4 hours. Power must input nominal 120 volts AC, 60 Hertz, single phase. AC connections to commercial power with 2 wire and ground, NEMA 5-15P plug. Audible alarms for commercial power fault and low battery shutdown. Controls and indicators including Test Alarm Disable, output ready, input power fault, overload, low battery, site wiring fault. Fused input and fused internal components, e.g., batter charger. Internal cooling fan, low noise suitable for in-room use. Price to include delivery and warranty of one (1) year minimum.	$4,360.00
	Total:	$4,360.00

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1) Pro-rated power supply costs for all workstations (18 total): $242.22
2) Total estimated unit cost of equipment for each CD-ROM workstation, complete: $4,284.33
3) With optional MODEM: $5,184.33

SITE PREPARATION

Site preparation requests for estimates have been requested. The preparation requirements are detailed in the following pages. Specifications require compatibility with (1) the existing library computer system, (2) external telecommunications equipment and services and (3) existing codes for building and safety.

Depending on problems encountered or modifications suggested during the site planning process, it would not be unreasonable to expect site preparation expenses to fall in the $20-25,000 range.

SITE PREPARATION SPECIFICATIONS

These specifications are to describe the needed construction and remodelling for a microcomputer installation in the library. Details of the needed changes follow. For clarification and elaboration contact John Evans, Reference Department, MSU Libraries, extension 2208.

Building 029, New Library, first floor, south wing, northwest corner. See attached sheets for construction sketch and wiring details.

Walls

Install floor to ceiling permanent glass partitions to enclose northwest corner of room creating separate space approximately 21 feet by 30 feet. Glass walls extend from existing wall 9 feet into existing room entryway. Concrete columns are to be engaged by the glass walls.

Two doors must be provided opening out and must be of sufficient width to provide wheelchair access. Locks are to be provided on both doors keyed to library key set and internal Sub 39. Rear door is for emrgency exit only with crash bar and open door alarm.

On second floor balcony overlooking this area install ledge to ceiling glass wall for security and noise control.

Electrical

Electric power is needed in three categories of load.

1. All microcomputers, monitors and CD-ROM drives to be used in this site will be powered through line conditioner/surge suppressors with battery back up. Four devices will be used each powering a cluster of equipment. To maintain flexibility of equipment use and room arrangement power distribution will be through heavy duty extension cords. The four devices, each at 800 Volt Amps and 600 Watts use 120 Volt, 60 Hertz single phase power supply. They connect to power supply with a 6 foot #14 AWG power cord, 2 wire and ground, NEMA 5-15P plug. These four

outlets, marked on the attached drawing, must be pulled from the main power panel with no intervening switches. These outlets are marked as E-1. Copy of specifications sheet is attached.

2. All other peripheral microcomputer devices (e.g. printers) require separate wiring provided through "power poles" or similar conduit terminating in NEMA 5-15 receptacles, standard 2 wire and ground at specified locations. A minimum of 4 receptacles is needed at each specified location as marked on drawing. Marked as E-2.

3. Convenience wiring should be provided throughout according to code.

None of these power circuits can be connected with the library's lighting system, though use with the computer system electrical wiring may be available and is acceptable.

Lighting

Install track or fixed lighting, in area with high ceiling to increase existing lighting to provide usable illumination (approximately 90-100 foot candles) on desk surfaces throughout the defined space and otherwise according to code.

HVAC

Modify existing HVAC to provide adequate ventilation in this room. As many as 20 people will be consistently using the room along with the heat generated by 16 microcomputers, 2 other computer terminals, 18 printers, 12 CD-ROM drives, the additional lighting and the 4 line conditioners. Because of the sensitivity of computer equipment to heat and humidity, special attention is requested to this critical factor.

Library Computer System Data Cables

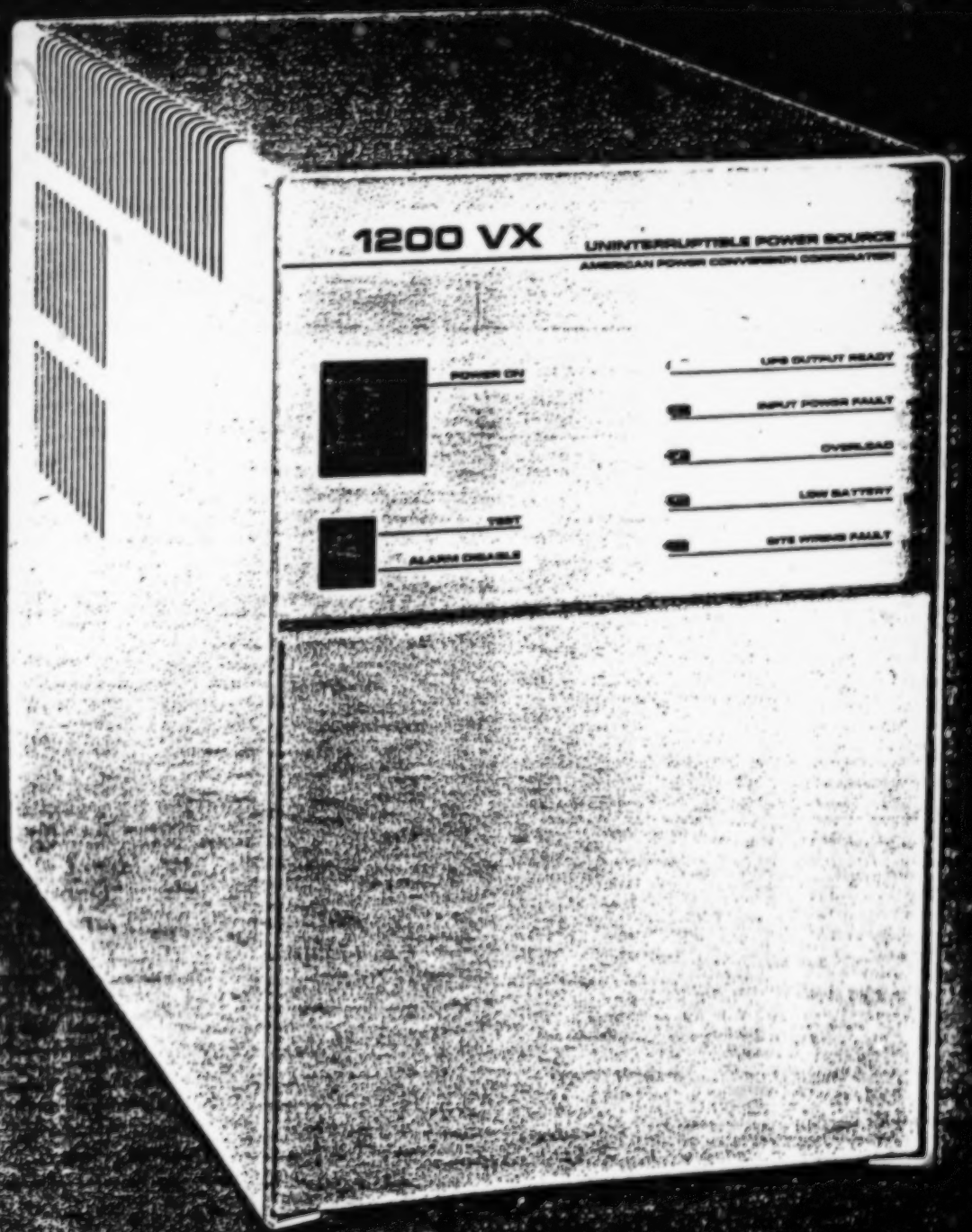
Pull two cables, 4 conductor, shielded Belden 8723 or equivalent from terminal block above ceiling in main lobby of library to the new south wall of this room. Provide minimum 20 feet of cable at in-room

termination. Library will furnish cable end with connector.

Telephone

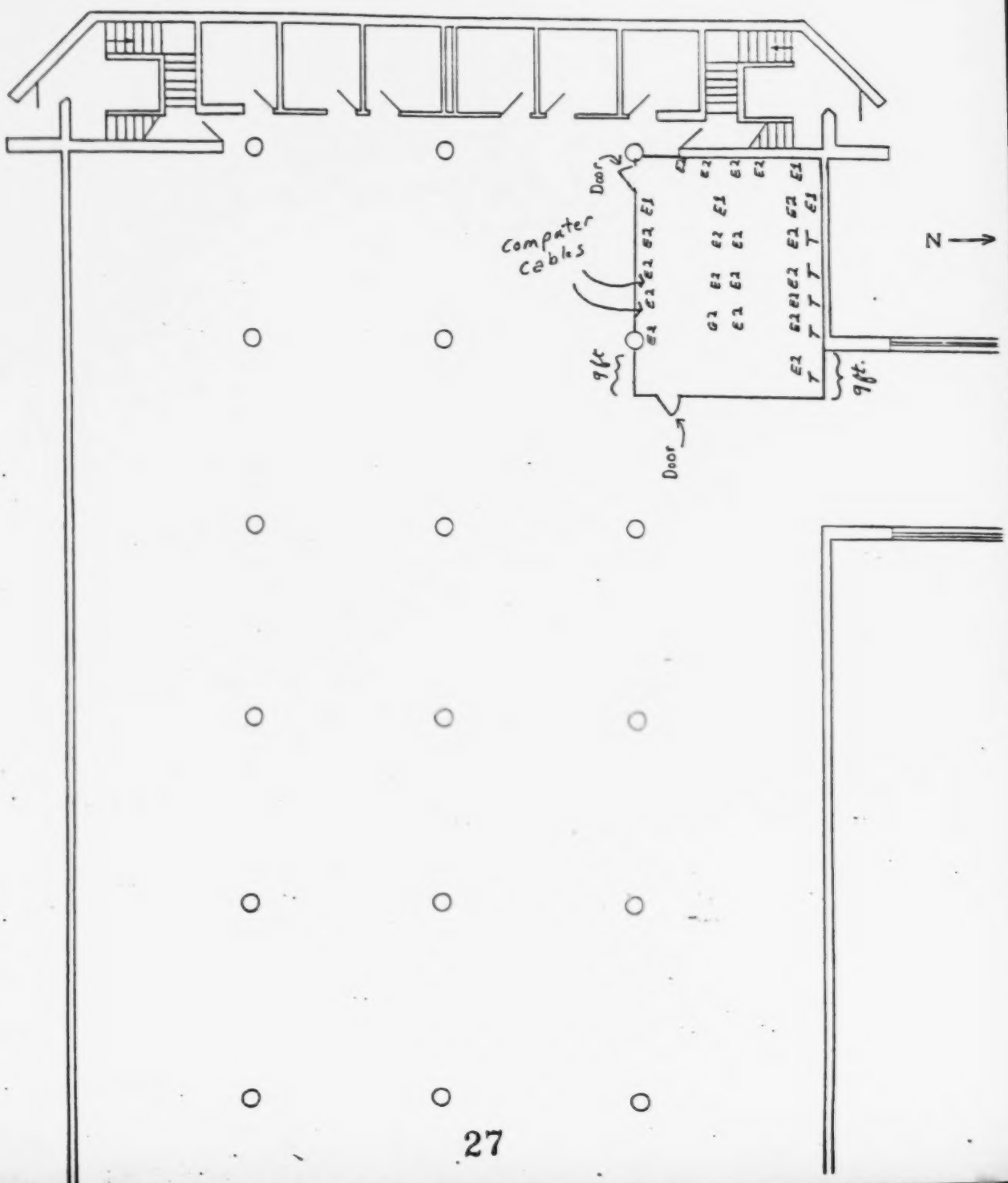
Install 5 voice grade, 4 wire, 2400 Baud telephone lines to a point (marked on drawing) inside the computer room. Terminate in RJ-11 modular receptacles. One phone set (voice terminal) is needed. The four other lines will be used exclusively for data communication and transmission. Marked as T on the drawing.

THE SUPERMICRO POWERHOUSE



The Models 800RT and 1200VX Uninterruptible Power Sources
from
AMERICAN POWER

BUILDING 029 NEW LIBRARY, FIRST FLOOR, SOUTH WING, NORTHWEST CORNER
Drawing not drawn to scale



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